

WHAT IS CLAIMED IS:

1. A system for simultaneously removing dust and volatile toxic organic compounds from contaminated air produced in a workshop, the system comprising:

a dust collecting unit disposed between an inlet duct and an outlet duct for removing dust;

an organic compound removing unit disposed between the inlet duct and the outlet duct for removing volatile toxic organic compounds; and

an inlet blower disposed between the dust collecting unit and the organic compound removing unit,

wherein the dust collecting unit is made up of a bag filter comprising: a housing formed in the shape of a box and connected to the inlet duct; a plurality of filtering members, such as cloth or felt, arranged in the housing; and dust collecting layers defined between the housing and the filtering members, and

wherein the organic compound removing unit comprises: an absorbing apparatus for absorbing the volatile toxic organic compounds; and regenerating heaters attached on the outer circumference of the absorbing apparatus,

whereby the dust and the volatile toxic organic compounds are removed when the contaminated air containing the dust and the volatile toxic organic compounds passes through the dust

collecting unit and the organic compound removing unit.

2. The system as set forth in claim 1, wherein the filtering members of the bag filter are coated with Gore-Tex, polyester, or polypropylene.

5 3. The system as set forth in claim 1, wherein the absorbing apparatus comprises:

 a first absorber having activated carbon put therein; and
 a second absorber having zeolite put therein.

10 4. The system as set forth in claim 1, wherein the absorbing apparatus comprises a plurality of absorbing layers, wherein the absorbing layers made of the activated carbon and the absorbing layers made of the zeolite are alternately stacked, or the absorbing layers are made of mixtures of the activated carbon and the zeolite.

15 5. A system for simultaneously removing dust and volatile toxic organic compounds from contaminated air produced in a workshop, comprising:

 a dust collecting unit disposed between an inlet duct and an outlet duct for removing dust;

20 an organic compound removing unit disposed between the inlet duct and the outlet duct for removing volatile toxic organic compounds; and

 an inlet blower disposed between the dust collecting unit and the organic compound removing unit,

25 wherein the dust collecting unit is made up of a bag

filter comprising: a housing formed in the shape of a box and connected to the inlet duct; a plurality of filtering members, such as cloth or felt, arranged in the housing; and dust collecting layers defined between the housing and the filtering members,

5 wherein the organic compound removing unit comprises: an absorbing apparatus for absorbing the volatile toxic organic compounds; and regenerating heaters attached on the outer circumference of the absorbing apparatus, and

10 wherein the system further comprises: a damper for changing the flow direction of the air to regenerate the absorbing apparatus; and a water tank connected to a bypass duct for storing the volatile toxic organic compounds,

whereby the system separately performs

15 a dust collecting and volatile organic compound removing process in which gas is introduced into the inlet duct, and passes through the bag filter, the absorbing apparatus, the outlet duct, and a discharging unit in order, and

an absorbing apparatus regenerating process in which gas

20 is introduced into the inlet duct, the gas introduced into the inlet duct passes through the bag filter, the gas having passed through the bag filter passed through the absorbing apparatus while the absorbing apparatus is heated by the regenerating heaters attached on the outer circumference of

25 the absorbing apparatus, the gas having passed through the

absorbing apparatus passes through the outlet duct, and the damper in order, and is then introduced into the water tank.

6. The system as set forth in claim 6, wherein the filtering members of the bag filter are coated with Gore-Tex,
5 polyester, or polypropylene.

7. The system as set forth in claim 6, wherein the absorbing apparatus comprises:

a first absorber having activated carbon put therein; and
a second absorber having zeolite put therein.

10 8. The system as set forth in claim 6, wherein the absorbing apparatus comprises a plurality of absorbing layers, wherein the absorbing layers made of the activated carbon and the absorbing layers made of the zeolite are alternately stacked, or the absorbing layers are made of mixtures of the
15 activated carbon and the zeolite.